

that exceeded 40 amps by the smallest number possible. Thus, we use 45 amps to compute Lincoln's DC power direct costs because Lincoln provides DC power in 15 amp increments.³¹³ In addition, we use 100 amps to compute GTOC's DC power direct costs because GTOC charges for DC power on a per square foot basis and GTOC provides an interconnector with 100 amps of DC power when the interconnector leases a standard 100 square foot physical collocation space.³¹⁴

164. We compute LECs' DS3 cross-connection and termination equipment functions based on the assumption that the LECs provide four DS3s through a typical physical collocation arrangement. This assumption is consistent with the assumption of 100 DS1s that we use in computing the direct costs for the other physical collocation functions because the capacity of four DS3s is roughly equal to the capacity of 100 DS1s.³¹⁵ Where we need assumptions to convert per unit DS3 cross-connection and termination equipment costs to direct costs, we use the LECs' DS1 cross-connection and termination equipment assumptions about the number of units (*e.g.*, feet of cable) required to provide 100 DS1s. These assumptions are not needed to compute the DS3 cross-connection and termination equipment direct costs in most cases, however, because the relevant unit of measure is usually per termination or per cross-connection. As a result, to make statistical comparisons, we determine total DS3 cross-connection and termination direct costs simply by multiplying per unit costs by four cross-connections or terminations in most cases.

165. We amortize nonrecurring direct costs over a 60-month period using a discount rate of 11.25 percent in order to add nonrecurring and recurring charges in arriving at a total direct cost for a particular function. Consequently, we express the total direct cost for each physical collocation function as a "monthly" cost. Amortization of nonrecurring costs is necessary for a comparison of direct costs among LECs because some LECs develop nonrecurring costs, while other LECs develop recurring costs for the same function.³¹⁶ Amortized nonrecurring costs are comparable to recurring costs because amortizing nonrecurring costs takes account of the time value of money.³¹⁷

166. The use of an 11.25 percent rate of interest for the purpose of amortizing the

³¹³ Lincoln Direct Case at 10.

³¹⁴ See Section III.E.1 *infra*.

³¹⁵ The capacity of one DS3 is equal to the capacity of 28 DS1s.

³¹⁶ Moreover, some LECs develop both recurring and nonrecurring costs for a single physical collocation function. In these cases, it is not possible to develop a proper comparison among LECs without amortizing the nonrecurring costs.

³¹⁷ For example, a dollar received today is worth more than a dollar received one year from today because the dollar received today can be invested today and earn interest for one year, while a dollar received a year from today cannot be so invested.

nonrecurring costs is consistent with the finding in this Order that this rate represents the LECs' cost of money or capital for the provision of physical collocation service. Moreover, the use of a 60 month amortization period is a reasonable estimate of the uncertain life of a physical collocation arrangement. With regard to that estimate, we note that 60 months is a period longer than any interstate physical collocation arrangement has been in place, since physical collocation tariffs first became effective on June 16, 1993. Although our expanded interconnection policy and the Telecommunications Act of 1996 are designed to open the interstate access market to competitive offerings of new entrants, we have no solid basis at this time for projecting the average life of a physical collocation arrangement beyond five years. Given the uncertainties regarding the manner in which competition will develop in local telecommunications markets and the possibility that entrants could shift from using collocation to deploying their own bypass facilities or using other means to provide service, we conservatively estimate that the life of a physical collocation arrangement will average five years.

167. We aggregate the direct costs for 14 physical collocation functions identified in the *Designation Order* into the direct costs for seven functions: floor space costs;³¹⁸ DC power costs;³¹⁹ cross-connection and termination equipment costs;³²⁰ security escort costs;³²¹ security installation costs;³²² construction costs;³²³ and entrance facility costs.³²⁴ We aggregate

³¹⁸ In the function-by-function analysis in this Order, the floor space function is the same as the floor space function identified in the *Designation Order*. See *Designation Order*, 8 FCC Rcd at 6911 n.46.

³¹⁹ DC power direct costs are comprised of costs associated with the DC power installation function and the DC power generation function.

³²⁰ The cross-connection and termination equipment direct costs are comprised of costs associated with the cross-connection provisioning function, cross-connection cable and cable support function, cross-connection equipment function and termination equipment function.

³²¹ The LECs' security escort direct costs are identified under the active security function in the *Designation Order*. See *Designation Order*, 8 FCC Rcd at 6912 n.54. Other security costs are also identified under the active security function and we address these other costs separately in the Order. See Section III.C.2.g *infra*.

³²² Security installation costs are the same as those identified under the security installation function in the *Designation Order*. See *Designation Order*, 8 FCC Rcd at 6912 n.53. Some LECs that develop these costs use card access systems and some use security systems other than a card access system. We analyze the security installation costs of those LECs that use card access systems separately from those that use other security systems in the Order. See Section III.C.2.g *infra*.

³²³ Construction direct costs are comprised of costs associated with the construction provisioning function, the interconnector-specific construction function, and the common construction function.

³²⁴ Entrance facility direct costs are comprised of costs associated with the entrance facility installation function and the entrance facility space function. Some LECs install the interconnector's cable from the manhole to the physical collocation enclosure within the LEC's central office, while other LECs do not provide cable installation. See Section III.C.2.i *infra*. We analyze the direct costs of those LECs that install the interconnector's cable

the direct costs for the physical collocation functions in this manner in order to maximize the statistical reliability of the direct cost data. Aggregating the direct costs for the functions enhances the reliability of the data because it renders harmless any errors some LECs may make on their TRP charts by erroneously assigning certain direct cost data to the wrong functions.

iv. Descriptive Statistics

168. Average Direct Cost. We compute an overall LEC average direct cost for each of the seven physical collocation functions.³²⁵ The overall LEC average for any particular function is a simple average, *i.e.*, the sum of each LEC's direct costs for a particular function divided by the number of LECs that comprise the sample for that function. A simple average is more appropriate for this analysis than a weighted average based on some measure of demand, *e.g.*, access lines, number of DS1 equivalent cross-connects, or number of collocation arrangements, because the direct costs of physical collocation do not depend on the demand for the service. The direct cost of a cage an interconnector uses for physical collocation, for example, is not affected by the demand for physical collocation service at the central office within which the cage is located.

169. Standard Deviation. We calculate the standard deviation of the direct costs relative to the average of those costs for every function.³²⁶ We make this calculation by using the sample standard deviation, *i.e.*, the sum of the squared deviations of the individual LEC costs from the sample average divided by the number of LECs in the sample minus one. We use the sample standard deviation in lieu of the population standard deviation because the data base is comprised of a sample of physical collocation direct costs, not the universe of those costs. Moreover, the data base is not comprised of physical collocation direct costs for every central office. The physical collocation direct costs in the data base reflect the direct costs of the highest-priced central offices for some LECs and the average direct costs for other LECs. Furthermore, as explained above, we remove some LECs' direct costs from the data base in certain cases before we calculate the overall LEC average direct cost and the standard deviation for a particular function.

v. Methodology for Prescribing Disallowances Based on the Industry-Wide Average Analysis

170. As discussed in Section III.C.2.b above, we adopt the average plus one standard deviation for a particular function as our statistical standard for creating a presumption that we should make disallowances to the LECs' physical collocation direct costs. Whenever a

separately from the direct costs of those LECs that do not in this Order. *Id.*

³²⁵ See Appendix B.

³²⁶ See *id.*

LEC's direct cost for a particular function is in excess of the average plus one standard deviation, we examine the LEC's cost data and any explanations that the LEC may provide on the record in order to determine whether the LEC justifies the high direct cost for that function. In the absence of adequate justification of higher direct costs, we generally disallow those direct costs that are in excess of the average plus one standard deviation for that function. In some cases where LECs develop separate direct costs for different central offices,³²⁷ however, we are not prescribing the average plus one standard deviation as the maximum allowable direct cost.

171. LECs That Develop Averaged Direct Costs Applicable to All Central Offices. Where a LEC develops averaged direct costs applicable to all central offices, we simply compare the average plus one standard deviation for each function with the LEC's direct costs for each function. For example, the average plus one standard deviation for DC power direct costs is \$660 per 40 amps per month. SNET's DC power direct costs, for all of its central offices, are \$789 per month. Because SNET does not justify the high direct cost for that function, we disallow the difference between \$789 and \$660, or \$129, and this disallowance applies to the DC power direct costs for all of SNET's central offices.³²⁸

172. LECs That Develop Separate Direct Costs for Different Central Offices. As we explain in Section III.C.2.a.v above, when LECs develop separate direct costs for different central offices, we select for our data base the one central office with the highest total price. We calculate a LEC's direct costs for each function at that central office, and use those direct costs in the data base.³²⁹ Where we compare the average plus one standard deviation for a function with a LEC's direct costs for that function, we distinguish between the direct costs of the LEC's central office with the highest total price, and the direct costs of the LEC's other central offices.

173. For the direct costs of a LEC's central office with the highest overall price, we compare the average plus one standard deviation for each function with the LEC's direct costs for each function at its highest overall price central office. In the absence of adequate justification for direct costs that exceed one standard deviation above the average, we disallow the LEC's direct costs for each function to the extent these costs exceed the average plus one standard deviation. For example, the floor space direct cost average plus one standard deviation is \$504 per month. The floor space direct costs for Pacific's overall highest priced central office, SCRMO1, are \$581 per month and Pacific does not justify the high level of this direct cost. The floor space direct cost disallowance for Pacific's overall highest-priced central office is, therefore, \$77 per month.

³²⁷ See discussion of LECs' TRP chart submissions for single or multiple central offices in Section III.C.2.c.ii *supra*.

³²⁸ See Section III.C.2.e *infra*.

³²⁹ See Appendix B.

174. For the direct costs of a LEC's central offices, other than its overall highest-priced central office, we also compare the average plus one standard deviation for each function with the LEC's direct costs for that function at the other central offices. Some of the other central offices have direct costs for a function that exceed the average plus one standard deviation for that function, but do not exceed the direct costs for that function at the LEC's central office with the highest total price. In these cases, we disallow direct costs to the extent that they exceed the average plus one standard deviation, unless the LEC justifies higher direct costs for that function. For example, some of Pacific's central offices have floor space direct costs that exceed the average floor space direct cost plus one standard deviation (\$504 per month), but do not exceed the floor space direct costs for Pacific's overall highest priced central office (\$581 per month).³³⁰ One such central office is Pacific's central office BKFC12. Pacific's floor space direct costs for central office BKFC12 are \$571 per month. The floor space direct cost disallowance for this office is, therefore, \$67 per month.

175. In a number of cases, we find the following scenario: (1) some of a LEC's central offices other than its highest-priced central office have direct costs for a function that exceed the average plus one standard deviation for that function, (2) these direct costs also exceed the direct costs for that function at the LEC's highest-priced central office, and (3) the direct costs for that function at the LEC's highest-priced central office exceed the average plus one standard deviation.³³¹ In these cases, we are not reducing the direct costs of the LEC's other central offices to the average plus one standard deviation for that function, if the LEC fails to justify higher direct costs for that function. Instead, we are reducing the direct costs of these other central offices for a given function by the same percentage that we are reducing the direct costs of the central office with the highest total price. For example, some of Pacific's central offices have floor space direct costs that exceed the average floor space direct cost plus one standard deviation (\$504) and also exceed the floor space direct costs for Pacific's central office with the highest total price (\$581). One such central office is Pacific's central office BRBN11. Pacific's floor space direct costs for this central office are \$625 per month. The floor space direct cost disallowance for Pacific's highest priced central office is \$77 (the difference between \$581 and \$504), which is a disallowance of 13 percent. The floor space direct cost disallowance for central office BRBN11 is, therefore, 13 percent of \$625, or \$81.

176. We adopt this approach because we recognize that, *for a given function*, the direct costs at a LEC's central office with the highest total price may differ from the direct costs at the LEC's other central offices. As previously discussed, we use the central offices

³³⁰ See Section III.C.2.d *infra*.

³³¹ A LEC's central office, other than its overall highest-priced central office, may have direct costs for a function that exceed the average plus one standard deviation for that function as well as the direct costs for that function at the LEC's overall highest-priced central office because the LEC central office designated as the "overall highest priced" has the highest total price, when the costs of all the functions are added together, but for *any given function*, that central office's direct costs may be less than those of another central office of that LEC.

with the highest total prices for our data base in order to calculate the average plus one standard deviation for each function. If we were to set, for other central offices for which a LEC claims higher direct costs for a particular function, the average plus one standard deviation as the maximum permitted direct cost for that function, we would be failing to account for the fact that the direct costs for the highest-priced central offices may differ from those direct costs of other central offices for that function.³³² LECs that develop separate direct costs for different central offices likely use the same methodology to calculate costs. We find, therefore, that any bias in the direct costs for the different central offices is likely to be in the same direction and of the same *relative* magnitude. Accordingly, if a LEC develops direct costs for a particular central office (Central Office A) that exceed both one standard deviation above the average and the direct costs of that LEC's overall highest priced central office (Central Office B) for that function, we believe it is reasonable to reduce the direct costs of the function for the particular central office (Central Office A) by the same *percentage* that we reduce the direct costs of the overall highest priced central office (Central Office B), assuming the direct costs of the overall highest-priced central office (Central Office B) also exceed the average plus one standard deviation. We find that this approach, ensures that a LEC's direct costs for a given function reasonably reflect the central tendency of the industry's costs, while recognizing that there may exist legitimate direct cost differences for that function among the LEC's central offices.

177. Finally, in a number of other cases, we find the following: (1) some of a LEC's central offices, other than its highest-priced central office, have direct costs for a function that exceed the average plus one standard deviation for that function, (2) these direct costs also exceed the direct costs for that function at the LEC's overall highest-priced central office, and (3) the direct costs for that function at the LEC's overall highest-priced central office do not exceed the average plus one standard deviation. In these cases, we are reducing the direct costs of the LEC's other central offices to the average plus one standard deviation for that function, if the LEC fails to justify higher direct costs. For example, SWB's large central offices are its overall highest-priced central offices and the security installation direct costs for these central offices are \$114 per month, which do not exceed the direct cost average for this function plus one standard deviation, or \$300 per month. However, the direct costs for SWB's medium-size central offices are \$331 per month, and these direct costs exceed the direct costs of SWB's overall highest-priced central office and the average plus one standard deviation for this function. The security installation direct cost disallowance for SWB's medium-size central office is the difference between \$331 and \$300, or \$31 per month, because SWB does not justify the high direct costs for this function.

³³² However, large variances for a given function, when compared to the average direct costs for the same function for all LECs, are not allowable unless the LEC has provided adequate cost justification.

vi. Direct Cost Disallowances in the Average Cost Analysis Section, in Relation to Direct Cost Disallowances in Other Sections

178. In Sections III.C.2.d - III.C.2.i below, we order certain LECs to recalculate their rates to reflect each of our disallowances, and to calculate the appropriate refunds for the improper charges imposed on the interconnectors based on these disallowances. In the event that the direct cost disallowances that we set forth elsewhere in this Order result in the recovery of direct costs that are less than the maximums we prescribe in Sections III.C.2.d - III.C.2.i, the full amount of those other disallowances are applicable, even where the result of those other disallowances is to further decrease the direct costs below the maximum prescribed in Sections III.C.2.d - III.C.2.i below. We believe that the larger disallowance is warranted in these cases because it is based on information in the record that the LEC specifically provides, whereas the average direct cost plus one standard deviation for a particular function is a ceiling that is based on pooled information that all of the LECs provide. We find that in those instances where LECs provide specific information on the development of their direct costs, it is reasonable to consider that information in our analysis of those costs.

d. Floor Space Costs

i. Background

179. Floor space costs reflect the direct costs of occupancy of central office floor space by the interconnector, including all ancillary and housekeeping services. The Bureau asked the LECs to provide TRP data on the investments, expenses and taxes listed on the TRP charts for this function in their direct cases and to explain the method by which the floor space direct costs were derived.³³³

ii. Discussion

180. We find that floor space direct costs of GTOC, US West, and Pacific for certain central offices are unjust and unreasonable because these costs exceed one standard deviation above the average floor space cost and none of these LECs justifies higher direct costs. Accordingly, these LECs are required to recalculate rates to reflect the floor space direct cost disallowances explained below.

181. In calculating the industry average and the standard deviation relative to that average, we remove the floor space direct costs of BellSouth, CBT, and Central from the data base. Unlike all other LECs, these LECs apparently include the cost of AC power converted

³³³ *Designation Order*, 8 FCC Rcd at 6911.

to DC power in their floor space direct costs.³³⁴

182. After making these adjustments to the database, the LECs' overall average for floor space direct costs is \$356 per 100 square feet per month and the standard deviation relative to that average is \$148 per 100 square feet per month.³³⁵ The average plus one standard deviation is equal to \$504 per month.

183. Disallowances for Overall Highest-Priced Central Offices. In cases where LECs develop separate direct costs for different central offices, we use the direct costs for these LECs' overall highest-priced central offices to calculate the industry average direct cost and the standard deviation relative to the average for each function.³³⁶ US West's floor space direct cost for its highest-priced central office is \$596, Pacific's floor space direct cost for its highest-priced central office is \$581, and GTOC's floor space direct cost for its highest-priced central office in Plano, Texas, the only city in which the company had a customer, is \$517. The floor space direct costs for the highest-priced central offices of these three LECs are higher than one standard deviation above the average and, because these LECs do not provide adequate cost justification, we find that their floor space costs are unjust and unreasonable.

184. GTOC fails to justify floor space direct costs that exceed one standard deviation above the industry-wide average. GTOC states that it derives its direct floor space costs from the C.A. Turner Telephone Plant Index,³³⁷ but does not submit any particular pages to document the numbers that it derives from this index and it does not cite any particular publication, volume, date, or pages as the source of that data. Furthermore, GTOC does not describe the data, assumptions, or methodology on which the publisher of the C.A. Turner Telephone Plant Index develops its index. When using indices of inflation to develop direct costs, we use indices that are verifiable, developed for broad sectors of the economy (*e.g.*, the consumer price index or the producer price index), used by a variety of users (*e.g.*, government agencies and a large cross section of companies within the private sector) and routinely developed by impartial government agencies (*e.g.*, the U.S. Bureau of Labor Statistics). The C.A. Turner Telephone Plant Index, however, is unverifiable, narrowly focused, and does not appear to be widely accepted because it is used by a small number of

³³⁴ BellSouth Direct Case, Exhibit 4 at 5; CBT Direct Case, Exhibit A at 8; Central Direct Case at 13. United also includes the cost of AC power converted to DC power in its floor space direct costs, but we remove United from the data base for all functions because it never had a physical collocation customer at any of its central offices.

³³⁵ The calculation and the explanation of this average and the standard deviation is set forth in Appendix B of this Order.

³³⁶ See Section III.C.2.c.ii *supra*.

³³⁷ Lincoln also uses the C.A. Turner Telephone Plant Index to develop its floor space direct costs. Lincoln, like GTOC, does not justify the use of this index or completely explain the way in which it is used. Unlike GTOC's direct costs, however, Lincoln's direct costs (\$347) are below the overall average for all LECs. Therefore, we find that Lincoln's direct costs are not unreasonable.

users. In light of GTOC's failure to demonstrate that use of the C.A. Turner Telephone Plant Index is reasonable, we find that GTOC fails to support a rate that recovers such a high level of floor space direct costs.

185. US West also fails to justify its high floor space direct costs. US West bases the market value of its central office building on its existing central office space lease rates and on discussions with two real estate brokers.³³⁸ US West provides no data on its existing central office lease rates and attempts to justify its rates for floor space with two page letters from two real estate firms. These letters provide little explanation for and almost no quantification of their estimates.³³⁹ US West does not, for example, provide the type of detailed comparative analysis that is commonly used for real estate valuation. Market value estimates of real estate require a substantial amount of judgment and such estimates may vary considerably depending on the methodology, data, and assumptions used by the appraiser. Moreover, US West fails to provide any information on the method that the real estate firms use to determine the market value of US West's central office buildings.

186. Finally, Pacific does not explain how it uses the R.S. Means data to develop its current direct cost estimate for central office floor space. Pacific does not identify the pages of the R.S. Means publication from which it derives current construction costs. As a result, we are unable to map data on current construction from the R.S. Means publication to the value of current investment Pacific uses to develop its direct floor space costs. In addition to its undocumented use of the R.S. Means data, Pacific states that it relies on actual construction experience at some of its central offices in developing its floor space direct costs, but Pacific does not explain how it uses this experience to develop floor space direct costs.³⁴⁰ We are, therefore, unable to validate the high level of Pacific's direct costs.

187. Accordingly, we order GTOC, US West, and Pacific to recalculate the floor space rates of their highest-priced central offices to exclude direct costs in excess of \$504 per month and calculate the appropriate refunds for unreasonable floor space charges imposed upon interconnectors. In the event that elsewhere in this Order, we make any disallowances to the direct costs of these LECs for other reasons that affect the level of their floor space direct costs, \$504 is the maximum permitted monthly floor space direct cost and the full amount of other disallowances should be reflected in the recalculated rates even when the result of those other disallowances would bring the carriers' floor space direct costs below \$504 per month.

188. Disallowances for Floor Space Charges in Central Offices that are not Overall Highest-Priced Central Offices. US West and Pacific also develop floor space direct costs for

³³⁸ US West Direct Case at 45-46.

³³⁹ See US West Direct Case, Appendix G at 2 and Appendix H.

³⁴⁰ Pacific Direct Case at 10.

central offices, other than the central office with the highest total price, that exceed \$504 per month (the average plus one standard deviation for that function).³⁴¹ We find that US West's and Pacific's floor space direct costs for these other central offices that exceed \$504 are unjust and unreasonable because, as explained above, US West and Pacific fail to justify higher direct costs for floor space in these offices.

189. As we discussed in Section III.C.2.c.v above, where the direct costs for a LEC's central offices, other than that LEC's overall highest priced central office, exceed the average plus one standard deviation for a particular function, but do not exceed the direct costs of the LEC's highest-priced central office for that function, we are disallowing the direct costs for those other central offices to the extent that they exceed the average plus one standard deviation. US West's floor space direct costs for central offices, other than its central office with the highest total price, exceed \$504 (the average plus one standard deviation), but do not exceed \$596 (US West's floor space direct costs for its highest-priced central office). Thus, for these central offices, the maximum permitted direct cost is \$504, the average plus one standard deviation for the floor space function, and we disallow the floor space direct costs of these central offices to the extent they exceed \$504. In addition, some of Pacific's central offices, other than the one with the highest total price, exceed \$504, but are less than \$581, the floor space direct cost for Pacific's central office with the highest total price. For these central offices, the maximum permitted direct cost is \$504, the average plus one standard deviation for the floor space function, and we disallow the floor space direct costs for these central offices to the extent that they exceed \$504.

190. In Section III.C.2.c.v above, we state that where the direct costs for a LEC's highest priced central office exceeds the average plus one standard deviation for a function, and some of that LEC's other central offices have direct costs for the same function that exceed the direct costs for the LEC's highest-priced central office, we disallow the direct costs of those other central offices by the percentage that we reduce the direct costs of the highest-priced central office for that function.³⁴² We adopt this approach because the direct costs of a certain function for some of a LEC's central offices may reasonably differ from the direct costs of that function in the same LEC's highest-price central office.³⁴³ Some of Pacific's central offices have direct floor space costs that exceed both the average plus one standard deviation for floor space direct costs (\$504), and Pacific's floor space direct costs for its central office with the highest total price (\$581). We reduce Pacific's floor space direct costs for its highest priced central office by 13 percent (from \$581 to \$504). Accordingly for Pacific's other central offices with floor space direct costs that exceed the direct costs of its highest-priced central office, we require Pacific to reduce its floor space direct costs at these

³⁴¹ Pacific and US West compute different direct costs for multiple central offices as do several other LECs. See Section III.C.2.c.ii *supra*.

³⁴² See Section III.C.2.c.v *supra*.

³⁴³ *Id.*

central offices by 13 percent.

191. We require US West and Pacific to recalculate their rates to reflect each of these floor space direct cost disallowances and to calculate the appropriate refunds for the improper floor space charges imposed on the interconnectors based on these disallowances. In the event that elsewhere in this Order, we make any disallowances to the direct costs of US West and Pacific for other reasons that affect the level of their floor space direct costs, the statistical disallowances we make in this section of the Order establish the maximum permitted floor space direct costs for these two LECs, and the full amount of any other disallowances must be reflected in the recalculated rates, even when the result of those other disallowances would bring the floor space direct costs of US West and Pacific below the maximum permitted levels.

192. Direct Costs of LECs Removed from the Data Base. We also examine the reasonableness of the floor space direct costs of those LECs that we remove from our data base because they bundle the cost of AC power converted to DC power with floor space direct costs. We calculate the floor space costs of these LECs without removing the AC power costs to convert DC power. We find that BellSouth's floor space direct costs are \$264 per month. Central's floor space direct costs are \$337 per month for its Des Plaines, Illinois central office, which is its overall highest-priced central office in Illinois, and \$265 per month for its Park Ridge, Illinois central office. CBT's floor space direct costs are \$219 per month for its area II central offices, which are its overall highest-priced central offices, \$253 per month for its area I central offices, and \$262 per month for its area III central offices. We find these costs to be less than the overall LEC average for this function (calculated to exclude BellSouth, CBT, GSTC, United and Central) even though the overall average is calculated to exclude AC power costs. We therefore disallow no amount of BellSouth's, Central's, or CBT's floor space direct costs based on this LEC industry average direct cost analysis.

e. Power Costs

i. Background

193. Direct Current (DC) power direct costs are for installation of DC power equipment for use by the interconnector and for providing the DC power. The Bureau's TRP charts set forth in the *Designation Order* were designed to disaggregate DC power direct costs into two functions: DC Power Installation and DC Power Generation. The Bureau adopted this approach because LECs' use of different rate structures makes it difficult to determine precisely how DC power costs should be assigned among rate elements.³⁴⁴ The Bureau asked the LECs to provide data on the investments, expenses, and taxes on TRP charts for these two functions in their direct cases and to explain the method by which the costs identified under

³⁴⁴ *Designation Order*, 8 FCC Rcd at 6911.

each one were derived.

194. In the *Designation Order*, the Bureau asked the LECs to provide and explain the equations used to compute AC power costs and power costs included in the cost of DC power.³⁴⁵ LECs convert AC power to DC power used for the interconnectors' digital circuit equipment. LECs also provide AC power to the interconnectors for lighting, heating, and air conditioning. The Bureau also asked SWB to explain why it is necessary for an interconnector to purchase both POT power service and DC power service and to explain why those charges are not duplicative.³⁴⁶ In addition, the Bureau asked SWB to provide and to explain the derivation and the reasonableness of the "in place factors" applied to vendor prices to obtain the investment amounts for the POT power arrangement rate element.³⁴⁷ Finally, the Bureau directed BellSouth to explain why it includes investment in its Interconnection Floor Space rate element for two 40 ampere (amp) feeds for both "electronic digital power" and "electronic analog power."³⁴⁸

ii. Discussion

195. We find that the DC power direct costs for all of the central offices of Nevada, SNET, CBT, and GTOC and those for some of Pacific's central offices are unjust and unreasonable because these costs exceed one standard deviation above the average direct DC power costs and none of these LECs justifies higher direct costs for this function. Accordingly, these LECs are required to recalculate their rates to reflect the DC power direct cost disallowances explained below.

196. We make two adjustments to the data that we are using to determine this average DC power direct costs for all LECs plus one standard deviation. First, we remove the DC power direct costs of BellSouth, CBT, and Central from the database because these LECs apparently include the cost of AC power converted to DC power in their floor space costs and no other LEC includes this cost in this function.³⁴⁹ Therefore, the DC power direct costs that these four LECs assign to the DC power function are not comparable to the DC power direct costs that those other LECs assign to the DC power function.

197. Second, we remove Nevada Bell from the data base because its DC power

³⁴⁵ *Id.* at 6914.

³⁴⁶ *Id.*

³⁴⁷ *Id.*

³⁴⁸ *Id.*

³⁴⁹ United also apparently includes the cost of AC power converted to DC power in its floor space direct costs, but we remove United from the data base for all functions because it never had a physical collocation customer at any of its central offices.

direct cost estimate is more than two standard deviations above the overall LEC average for this function.³⁵⁰ Nevada Bell's DC power direct cost, \$2,143 per month, is more than three times the overall LEC average of \$581 per month for this function (calculated to exclude the DC power direct costs of BellSouth, CBT, GSTC, United and Central) and is substantially greater than the overall LEC average for this function plus two standard deviations, \$1,709 per month (calculated on the same basis as the average). Moreover, Nevada Bell's DC power direct cost estimate is also nearly three times the size of the next largest DC power direct cost estimate, namely, SNET's estimate of \$789 per month.³⁵¹ Accordingly, we are removing Nevada Bell from the data base (but not exempting it from any disallowance based on the result of our statistical analysis) because we believe that Nevada Bell's DC power direct cost estimate is such an outlier that it would unreasonably skew the data. If we were to include Nevada Bell's estimate in the sample of estimates on which we are calculating the average and the standard deviation, the average would not be an accurate measure of the central tendency or location of the direct cost data, which is the purpose for which it is designed. The standard deviation which is calculated relative to that average would also be less meaningful as a statistic for describing the overall distribution of the data.

198. After making these adjustments to the data base, we find that the overall LEC average direct cost for the DC power installation and the DC power generation recurring and nonrecurring functions is \$424 per 40 amps per month. The standard deviation of these direct costs relative to that average is \$236 per 40 amps per month. The average plus one standard deviation is \$660.

199. DC Power Direct Costs of SNET, GTOC, and Nevada. SNET's DC power direct costs are \$789 per month, GTOC's DC power direct costs for Plano, Texas, which is the only location where it provides physical collocation service to an actual customer, are \$786 per month, and Nevada's DC power direct costs are \$2,143 per month. The DC power direct costs for these LECs are in excess of the overall average plus one standard deviation for this function. We find these direct costs to be unreasonable because, as explained below, these LECs fail to justify their high direct costs for this function.

200. GTE fails to justify its high DC power direct costs because although it provides the equation it uses to compute the recurring cost of generating DC power,³⁵² it does not provide any calculations on workpapers or data to support the efficiency and heat loss factor it uses in that equation. GTE briefly explains that the investments for which it develops recurring DC installation costs and nonrecurring DC power installation costs represent modified national averages of the prospective labor costs for installing the assets that comprise

³⁵⁰ See Section III.C.2.c.ii *supra*.

³⁵¹ See Nevada Direct Case, Appendix B.

³⁵² GTE Direct Case at 18.

those investments.³⁵³ Although GTE indicates that the national average is based on data contained in *The Means Construction Cost Data Book*, GTE does not cite to any relevant volume, publication date, or pages of that book, or provide copies of the pertinent pages.³⁵⁴ Nor does GTE set forth on workpapers the calculations that underlie that national average. Although GTE reveals the percentages that it applies to the national labor cost averages to adjust for differences in geographical labor costs, it does not explain how it derives those percentages.³⁵⁵

201. SNET also fails to justify its high DC power direct costs. In its direct case, SNET identifies the equations it uses to develop the AC power costs included in its rate for DC power, but provides no explanation of the methodology it uses to establish other costs that it includes in this rate.³⁵⁶ SNET also shows estimates of its contractor costs, internal engineering costs, and plant costs to support its DC power installation costs in its direct case, but provides no explanation of the methodology by which it develops those costs.³⁵⁷

202. Finally, Nevada fails to justify DC power direct costs that exceed one standard deviation above the average. Nevada sets forth the capital costs and the operating expenses for the DC power installation and generation functions, but does not identify the assets that comprise the investment for these functions or explain its valuation of those assets.³⁵⁸ Nor does Nevada explain the methodology by which it derives the annual cost factors that it applies to the investment in those assets in determining its DC power installation and generation direct costs.

203. Accordingly, we disallow the DC power direct power costs of GTOC, SNET, and Nevada to the extent that they exceed \$660 per month. We order GTOC, SNET and Nevada to recalculate their rates to reflect these disallowances and to calculate the appropriate refunds based on the difference between the allowable direct cost of \$660 and the higher direct costs that they imposed on their interconnector-customers. In the event that elsewhere

³⁵³ GTE Direct Case, Attachment 1 at 6, 17.

³⁵⁴ The record does not indicate whether *The Means Construction Cost Data Book* used by GTE to develop its direct costs for power and the "R.S. Means data" used by Pacific to develop its direct costs for floor space refer to the same publication. For a discussion of Pacific's floor space direct costs, see Section III.C.2.d *supra*.

³⁵⁵ *Id.*

³⁵⁶ SNET Direct Case at 5. SNET revised its DC power rate element pursuant to Transmittal No. 584, filed on November 12, 1993. In this Transmittal, SNET lists power plant costs, kilowatt costs and emergency power costs without any explanation of the methodology or assumptions used to develop these costs. See SNET Transmittal No. 584, Description and Justification, Exhibit 4.

³⁵⁷ SNET Direct Case, Attachment 1. SNET identifies but provides no explanation for its DC power installation costs in Transmittal No. 584. See SNET Transmittal No. 584, Description and Justification, Exhibit 4.

³⁵⁸ Nevada Direct Case, Appendix B, Attachment 10, Attachment 12.

in this Order we make any disallowances to the direct costs of these LECs for other reasons that affect the level of the DC power direct costs, \$660 is the maximum permissible level for the DC power direct costs and the full amount of any other disallowances must be reflected in the recalculated rates even when the result of those other disallowances would bring their DC power direct costs below \$660.

204. Pacific's DC Power Direct Costs. We find that Pacific's DC power direct costs for its overall highest-priced central office, central office SCRM01, are \$335 per month, and these DC power direct costs are, therefore, less than the LEC average DC power direct cost plus one standard deviation. Some of Pacific's other central offices, however, have DC power direct costs that exceed the average plus one standard deviation.³⁵⁹ Pacific's DC power direct costs for central office LAMS01 are, for example, \$835 per month.

205. We find that the DC power direct costs of Pacific's other central offices that exceed the average plus one standard deviation are unjust and unreasonable because Pacific fails to justify these high direct costs. Pacific merely provides a general discussion of the investments and the labor required for the DC power installation and DC power generation functions³⁶⁰ and submits workpapers listing the costs for these functions.³⁶¹ Although Pacific states that labor hours are developed by Pacific's subject matter "experts"³⁶² and that the installed costs per foot of power cable racking and cable ironwork are developed from current vendor information,³⁶³ Pacific does not provide specific information on the data, assumptions, and methodology used to develop these DC power direct costs. Pacific states that it develops DC power generation investment by identifying the current cost per amp to supply DC power and uses a construct that models a typical central office power serving arrangement to derive this cost.³⁶⁴ Pacific, however, merely lists gross investment for a back-up generator, power plant, battery distribution fuse bay, cable and cable racking without showing the specific data or calculations that underlie the dollar amounts of these investments.³⁶⁵ Moreover, Pacific refers to a 1992 company study to support its annual maintenance factor for DC power installation³⁶⁶ and DC power generation,³⁶⁷ but does not provide copies of this study or the

³⁵⁹ See Appendix C.

³⁶⁰ Pacific Direct Case at 13-15, 23-24, 30-31.

³⁶¹ Pacific Direct Case, Appendix H, Appendix I.

³⁶² *Id.* at 24.

³⁶³ *Id.* at 13-14.

³⁶⁴ *Id.* at 14-15.

³⁶⁵ Pacific Direct Case, Appendix I at I.4.

³⁶⁶ Pacific Direct Case, Appendix H.

pertinent details contained in it.

206. Accordingly, for Pacific's central offices with DC power direct costs that exceed one standard deviation above the average, Pacific must recalculate its rates to reflect DC power direct costs that do not exceed one standard deviation above the average and then calculate the appropriate refunds payable to the interconnector-customers. If elsewhere in this Order we make any disallowances to Pacific's direct costs for other reasons that affect the level of its DC power direct costs, \$660 is the maximum permissible level for Pacific's DC power direct costs and the full amount of those other disallowances must be reflected in Pacific's recalculation of its direct costs, even when the result of those other disallowances would bring Pacific's DC power direct costs below \$660.

207. DC Power Direct Costs of LECs That Bundle the Cost of AC Power Converted to DC Power into Their Floor Space Direct Costs. We examine the reasonableness of the DC power direct costs of those LECs we remove from the data base because these LECs bundle the cost of AC power used to provide DC power into floor space direct costs. We find that CBT's DC power direct costs are \$718 per month for its area I offices, \$741 per month for its area II offices, which are CBT's overall highest-priced central offices,³⁶⁸ and \$811 per month for its area III offices. These direct costs are in excess of the overall average plus one standard deviation for this function,³⁶⁹ even though the DC power direct costs of CBT's central offices are exclusive of any costs of AC power converted to DC power.³⁷⁰ Accordingly, we find that CBT's direct costs are unjust and unreasonable because CBT fails to provide adequate justification for these high costs. Although it lists DC power plant and power plant floor space investments and the annual cost factors that it applies to these investments to compute the DC power direct costs, CBT does not explain the methodology, the assumptions, and the data on which it develops the investment and the annual cost factors for this function.³⁷¹

208. We are, therefore, requiring CBT to recalculate its direct costs so as to remove any cost of AC power converted to DC power from floor space direct costs and to include

³⁶⁷ Pacific Direct Case, Appendix I.

³⁶⁸ The direct costs for CBT's area II central offices are those that are reflected in the data base used to calculate the overall LEC average and the standard deviation because the area II central offices are CBT's highest-priced central offices. See Section III.C.2.c.ii *supra*.

³⁶⁹ This statistic measures the average plus one standard deviation for those LECs that do not bundle AC power costs to provide DC power with floor space direct costs.

³⁷⁰ CBT's costs associated with AC power converted to DC power are bundled into its floor space direct costs. See Section III.C.2.d *supra*.

³⁷¹ CBT Direct Case, Tab 3, Attachment B-1, Worksheet 6, Worksheet 7, Worksheet DS-1 at 4-7, Worksheet DS-2 at 1.

these AC power costs in its DC power direct costs. CBT must recalculate its rates and file new cost support data to reflect this adjustment and must calculate the refund payable to its interconnector-customers. For CBT's area I and area II central offices, \$660, the DC power direct cost average plus one standard deviation, is the maximum permitted monthly DC power direct cost and CBT is required to refund all amounts it collected during the relevant time period that reflect DC power direct costs that exceed \$660 per month. In the event that elsewhere in this Order we make any disallowances to CBT's direct costs for other reasons that affect the level of its DC power direct costs, \$660 is the maximum permissible level for CBT's area I and area II central office DC power direct costs and the full amount of any other disallowances must be reflected in the recalculated rate even when the result of those other disallowances would bring CBT's DC power direct costs for its area I and II central offices below \$660.

209. We find CBT's DC power direct costs for its area III central offices are \$811 per month and these direct costs, therefore, exceed the average plus one standard deviation (\$660) and the direct costs of CBT's central offices with the highest total price, \$741 per month. As explained in Section III.C.2.c.v above, we are not prescribing one standard deviation above the average DC power direct cost as the maximum permitted direct cost for these central offices. Instead, we require CBT to calculate the percentage by which it is required to reduce its DC power direct costs for its area II offices, CBT's overall highest priced central offices, and reduce its costs for area III offices by the same percentage. That is, after it recalculates its DC power direct costs to include the direct cost of converting AC power to DC power for its area II offices, and determines the extent to which such costs exceed \$660 per month, the average plus one standard deviation, CBT must reduce its direct costs to \$660 per month. Then, after determining the percentage by which it is required to reduce its DC power direct costs for area II offices, CBT must apply the same percentage disallowance to the direct costs, inclusive of the direct costs of AC power converted to DC power, for its area III offices. This approach recognizes that when a LEC develops different costs for different central offices, it is likely to use the same methodology to calculate costs and any bias in direct costs for central offices that are not the LEC's highest-priced central office is likely to be in the same direction and of the same relative magnitude as in that LEC's highest-priced central office.³⁷² Hence, this percentage disallowance ensures that a LEC's direct costs for a given function reasonably reflect the central tendency of the industry's costs, while recognizing that there may exist legitimate direct cost differences for that function among the LEC's central offices.

210. In the event that elsewhere in this Order we make any disallowances to CBT's direct costs for other reasons that affect the level of its DC power direct costs, the full amount of any other disallowances must be reflected in the recalculated rate even when the result of those other disallowances would bring CBT's DC power direct costs for its area III offices below the maximum permissible level.

³⁷² See Section III.C.2.c.v *supra*.

211. We remove the DC power direct costs of certain other LECs from our data base because they bundle the cost of AC power to provide DC power into their floor space direct costs. We find that the DC power direct costs and floor space costs of these other LECs, BellSouth and Central, are not unreasonable. BellSouth's DC power direct costs are \$150 (based on the cost of AC power converted to DC power bundled into floor space direct costs). Central's DC power direct costs for its Des Plaines and Park Ridge central offices in Illinois, the only state in which Central had a physical collocation customer, are \$110 and \$234 per month, respectively (based on the cost of AC power converted to DC power bundled into floor space direct costs). We find that, after making our adjustments to the data base, these direct costs are less than the LECs' overall average plus one standard deviation for this function. Moreover, as we determined in Section III.C.2.d above, BellSouth's and Central's floor space direct costs (calculated without removing the AC power costs to convert DC power) are less than the overall LEC average for that function (calculated to exclude BellSouth, CBT, GSTC, United and Central) even though that overall average is calculated to exclude such AC power costs. Since BellSouth's and Central's DC power costs and floor space costs are below the adjusted average for the DC power and the floor space direct cost functions, we find that their DC power direct costs and their floor space direct costs are not unreasonable when compared to the same costs for other LECs in the samples. We therefore make no statistical disallowances to their DC power direct costs or to their floor space direct costs.

f. Cross-Connection and Termination Equipment Costs

i. Background

212. Cross-connection direct costs include cross-connection provisioning, direct costs, cross-connection cable and cable support direct costs, and cross-connection equipment costs. Cross-connection provisioning direct costs are those for service order processing, circuit design, installation, and testing for the cross-connection between the interconnector's space and the LEC's MDF. Cross-connection cable and cable support costs are those for all cabling and cable support structures between the interconnector's space and the LEC's MDF. Cross-connection equipment costs are those for all equipment between the interconnector's space and the LEC's MDF. Termination equipment costs are the costs for all LEC-provided equipment in or adjacent to the interconnector's space that is used for cross-connection functions, except the cross-connection itself. The Bureau's TRP charts set forth in the *Designation Order* were designed to disaggregate cross-connection and termination equipment direct costs into four functions -- Cross-Connection Provisioning, Cross-Connection Cable and Cable Support, Cross-Connection Equipment and Termination Equipment -- because LECs' use of different rate structures made it difficult to determine precisely what cross-connection and termination equipment costs are associated with particular rate elements.³⁷³ The Bureau asked the LECs to provide TRP data on the investments, expenses and taxes for these four

³⁷³ *Designation Order*, 8 FCC Rcd at 6911.

functions in their direct cases and to explain the method by which the costs identified under each one were derived.

ii. Discussion

213. Methodology. We combine the LECs' cross-connection and termination equipment functions to develop a comparison of the direct costs of both functions among LECs. We are combining these two functions to make these direct cost comparisons in order to simplify the analysis and to increase the accuracy of our conclusions. Although the LEC-provided equipment used for cross-connection activities is categorized under one of these functions, it is possible that LECs may not uniformly assign the same equipment between these two functions. By combining the two functions, we capture the direct costs of all of the equipment used for all of the cross-connection activities, and eliminate the potential for statistical error.

214. Based on our direct cost statistical analysis and review of the direct cases, we find that the cross-connection and termination equipment direct costs for Central, Nevada, and US West are unjust and unreasonable because their direct costs exceed one standard deviation above the average and they fail to justify such high direct costs for this function. Accordingly, we require these LECs to calculate rates that reflect cross-connection and termination direct costs that do not exceed one standard deviation above the average costs. In addition, we require Nevada to tariff such rates,³⁷⁴ and Central, Nevada, and US West must provide refunds to their interconnector-customers based on the amount by which their cross-connection and termination direct costs exceed the average plus one standard deviation for this function.

215. We adjust the cross-connection cost data to remove the direct costs associated with the provision of repeaters because in Section III.C.1.d *supra*, we determine that LECs may not charge interconnectors for repeaters. We also adjust the cross-connection direct cost data to remove the direct costs associated with the provision of POT bays because in Section III.C.1.d *supra*, we determine that the LECs may require POT bays, but must unbundle POT bays from the cross-connect rate element, establish a separate rate element for this equipment, and allow the interconnector to provide this item itself.

216. We also make two additional adjustments to the data to ensure accurate comparisons of the LECs' cross-connection and termination equipment direct cost data. First, we remove GTOC's cost data from the data base because GTOC requires its interconnector to provide the cable from the interconnector's equipment to GTOC's DSX-1 or DSX-3 bay,³⁷⁵

³⁷⁴ Central and US West are not required to tariff rates that reflect the LEC average cross-connection direct costs plus one standard deviation because they no longer offer physical collocation.

³⁷⁵ GTOC Direct Case at 19-20, 26, 27.

and no other LEC has imposed this requirement.³⁷⁶ Second, we remove Nevada's cross-connection and termination direct costs from our database because these costs are in excess of two standard deviations above this overall average.³⁷⁷ Nevada's DS1 cross-connection and termination direct cost, \$5,722 per month, is more than four times the LECs' overall average, \$1,326 per month. Moreover, Nevada's DS3 cross-connection and termination direct cost is \$1,932 per month, more than five times the LECs' overall average, \$362 per month. In fact, Nevada's cross-connection and termination direct costs for this function are not only greater than two standard deviations above the overall LEC average for this function, but Nevada's DS1 and DS3 cross-connection and termination direct costs exceed the average plus three standard deviations for this function, \$5,535 per month and \$1,908 per month, respectively. In addition, Nevada's DS1 and DS3 cross-connection and termination equipment costs are approximately three times as large as the next highest direct cost estimate for this function, namely, US West's DS1 and DS3 costs of \$1,913 per month and \$639 per month.³⁷⁸

217. Disallowances. After making these adjustments to the database, we find that the overall LEC averages for the DS1 and DS3 cross-connection and termination equipment cost functions are \$960 per month and \$220 per month, respectively. The standard deviations of these direct costs relative to these averages are \$494 per month and \$153 per month, respectively. Thus, the averages plus one standard deviation are \$1,454 and \$372 per month, respectively.

218. Nevada's DS1 cross-connection and termination equipment direct costs for the four central offices for which it develops direct costs are: \$5,722 for central office SPRKNV11, which is Nevada's overall highest-priced central office, \$4,924 for central office RENONV02, \$4,899 for central office RENONV13, and \$4,711 for central office CRCYNV01. Central's DS1 cross-connection and termination equipment direct costs for its central offices in Illinois are \$1,913. US West's DS1 cross-connection and termination equipment direct costs for all of its central offices are \$1,924. We find that the DS1 cross-connection and termination equipment direct costs for these three LECs are unjust and unreasonable because they are in excess of the overall average plus one standard deviation for this function and these LECs have not adequately justified their high costs.

219. Moreover, Nevada's DS3 cross-connection and termination equipment direct

³⁷⁶ GTOC does not dedicate a POT bay as part of any rate element. *See id.* at 20. LECs that require the interconnector to purchase a POT bay require the interconnector to provide the cable between the interconnector's equipment and the POT bay. When a LEC requires the interconnector to purchase a POT bay, the LEC provides the cable between the POT bay and the LEC's DSX-1 or DSX-3 bay. The POT bay is usually located adjacent to or inside of the interconnector's enclosed space within the central office. *See, e.g.,* US West Direct Case at 57; Pacific Direct Case, Appendix O, Diagrams C and E; NYNEX Direct Case, Appendix A at 22; Ameritech Direct Case, Appendix A at ii.

³⁷⁷ *See* Section III.C.2.c.ii *supra*.

³⁷⁸ *See* Appendix B.

costs for the four central offices for which it develops direct costs are: \$1,932 for central office SPRKNV11, \$1,134 for central office RENONV02, \$1,110 for central office RENONV13, and \$921 for central office CRCYNV01. US West's DS3 cross-connection and termination equipment direct costs for all of its central offices are \$639. We find that the DS3 direct costs of these two LECs are unjust and unreasonable because they are in excess of the overall average plus one standard deviation for this function and these LECs do not provide adequate justifications for these high costs.

220. Nevada fails to justify its direct costs in excess of one standard deviation above the average because it sets forth the capital costs and the operating expenses for the cross-connection and termination equipment functions in its direct case, but does not identify the assets that comprise the investment for these functions or explain the valuation of those assets.³⁷⁹ Moreover, Nevada fails to explain the methodology by which it derives the annual cost factors that it applies to the investment in those assets to determine its cross-connection and termination equipment direct costs.

221. Central's justification for the cross-connection and termination equipment function consists of a description of the type of cross-connection arrangement Central provides to each interconnector and the reasons why this type of arrangement is beneficial.³⁸⁰ Central, however, does not explain how it derives its costs for this function.

222. Finally, US West explains that its cross-connection and termination equipment direct costs are attributable to the capital investment, including cabling, DSX panels, repeaters and fiber optic terminals required to provide service under four different provisioning models.³⁸¹ While explaining that the source of the investment information on all of its TRP charts is US West's engineering subject matter "experts," US West nonetheless fails to document properly the particular data, assumptions, and valuation methodology these experts use to determine the amount of the investments specifically required to provide cross-connection service under the four models.³⁸² Nor does US West explain the data, the assumptions, or the methodology on which it develops the annual cost factors it uses to compute the cross-connection and termination equipment direct costs.

223. We therefore order Nevada, US West and Central to recalculate their rates to exclude the amount of the these disallowed direct costs and to calculate the refunds based on these disallowances. In the event that elsewhere in this Order we make any disallowances to the direct costs of these LECs for other reasons that affect the level of their cross-connection

³⁷⁹ Nevada Direct Case, Appendix B, Attachments 1, 3, 5.

³⁸⁰ United and Central Direct Case at 8-11.

³⁸¹ US West Direct Case at 54-55.

³⁸² *Id.* at 7.

and termination equipment direct costs, \$1,454 per month and \$372 per month are the maximum permissible levels for their DS1 and DS3 cross-connection and termination equipment direct costs respectively, and the full amount of any other disallowances must be reflected in the recalculated rates even when the result of those other disallowances would bring the carriers' cross-connection and termination equipment direct costs below \$1,454 per month or \$372 per month.

224. With regard to GTOC's DS1 and DS3 cross-connection and termination equipment direct costs, which we remove from the data base because GTOC requires the interconnector to provide the cable from the interconnector's equipment to GTOC's DSX-1 or DSX-3 bay, we find that these costs are not unreasonable. In order to evaluate the difference between GTOC's DS1 cross-connection and termination equipment direct costs and the overall LEC average plus one standard deviation for that function, we adjust the average plus one standard deviation to account for GTOC's being the only LEC that requires the interconnector to provide the cable between the interconnector's equipment and the DSX-1 bay. We therefore compare GTOC's cross-connection and termination equipment direct costs with the LEC average plus one standard deviation for this function, \$1,454, less cross-connection cable/cable support direct costs. This adjustment produces a direct cost that gauges the reasonableness of GTOC's DS1 cross-connection and termination direct costs.³⁸³ We make this adjustment by taking CBT's direct costs for DS1 cable/cable support, which are the highest DS1 cable/cable support direct costs of any LEC, and subtracting those direct costs from the LEC average plus one standard deviation. CBT's direct cost for the DS1 cable/cable support function is \$914. After subtracting \$914 from the overall average plus one standard deviation, \$1,454, the modified overall LEC average DS1 cross-connection and termination direct cost is \$540. GTOC's DS1 cross-connection and termination equipment direct cost is \$317, substantially less than the overall LEC average cross-connection and termination direct cost less CBT's direct costs for the DS1 cable/cable support function.³⁸⁴ Accordingly, we make no disallowance to GTOC's direct costs for the DS1 cross-connection and termination function based on this LEC industry average cost analysis.

225. We conduct a similar analysis of GTOC's DS3 cross-connection and

³⁸³ We use this methodology to determine the reasonableness of GTOC's cross-connection and termination direct costs because cross-connection cable/cable support direct costs include the direct cost of the cable between the interconnector's equipment and the DSX bay, the direct costs that are not included in GTOC's cross-connection and termination direct costs.

³⁸⁴ No other LEC develops DS1 cross-connection cable/cable support costs higher than CBT, and CBT's cable/cable support costs include more than just the cost of cable from the interconnector's equipment to the DSX-bay. In particular, CBT's DS1 cross-connection cable/cable support function includes the cost for cable, cable rack, and DSX equipment. See CBT Direct Case, Attachment B-1, Worksheet 1. If GTOC had provided the cable between the interconnector's equipment to GTOC's DSX-1 bay and developed direct costs as large as CBT's DS1 cross-connection cable/cable support costs, GTOC's cross-connection and termination equipment function direct costs, which would have included the direct costs associated with that cable, would have been less than the overall LEC average plus one standard deviation for the DS1 cross-connection and termination equipment function.

termination equipment direct costs. The overall LEC DS3 cross-connection and termination equipment average plus one standard deviation is \$372. GTOC's DS3 cross-connection and termination equipment direct costs are \$112. Therefore, GTOC's DS3 cross-connection and termination equipment direct costs are \$260 less than the average plus one standard deviation. We adjust the average plus one standard deviation by taking US West's direct costs for the DS3 cross-connection cable/cable support function, the highest of any LEC for that function, and subtracting this cost from the LEC average DS3 cross-connection and termination equipment direct cost plus one standard deviation. US West's DS3 cross-connection cable/cable support direct costs are \$242.³⁸⁵ After subtracting \$242 from \$372, the overall average plus one standard deviation, the modified LEC average DS3 cross-connection and termination direct cost is \$130. GTOC's DS3 cross-connection and termination equipment direct cost is \$112, still less than overall LEC average cross-connection and termination direct cost less US West's direct costs for the DS3 cable/cable support function.³⁸⁶ Accordingly, we make no disallowance to GTOC's direct costs for the DS3 cross-connection and termination equipment function based on this LEC industry average cost analysis.

226. POT Bay Direct Cost Disallowances. We find that the POT bay direct costs for SWB and NYNEX are unjust and unreasonable because they are in excess of the overall LEC average for DS1 and DS3 POT bay direct costs plus one standard deviation and these LECs do not justify these high direct costs. Accordingly, these LECs are required to recalculate their rates to reflect the POT bay direct cost disallowances explained below.

227. We calculate separate overall LEC averages for DS1 and DS3 POT bay direct costs and the standard deviations of these costs relative to those averages because LECs develop different POT bay direct costs for DS1 and DS3 cross-connection service. The data base that we use to calculate these statistics is comprised of the POT bay direct costs for LECs, other than SWB, that develop direct costs for this piece of equipment. We exclude SWB from the data base because SWB's direct costs are in excess of two standard deviations

³⁸⁵ US West provides a DSX within the interconnector's leased physical space. See US West Direct Case at 57. US West provides the cable between this intermediate DSX and US West's shared network DSX panels. See *Id.* at 54-55.

³⁸⁶ No other LEC develops DS3 cross-connection cable/cablesupport costs higher than US West, and US West's cable/cable support costs include more than just the cost of cable from the interconnector's equipment to the DSX-bay. In particular, US West's DS3 cross-connection cable/cable support function includes the cost for jumpers regenerator cables, and DSX cables. See US West Direct Case, TRP charts for the cross-connection cable/cable support function. If GTOC had provided the cable between the interconnector's equipment to GTOC's DSX-3 bay and developed direct costs as large as US West's DS3 cross-connection cable/cable support costs, GTOC's cross-connection and termination equipment function direct costs, which would have included the direct costs associated with that cable, would have been less than the overall LEC average plus one standard deviation for the DS3 cross-connection and termination equipment function.

above this overall average.³⁸⁷

228. After making the adjustment to remove SWB from the data base, we find that the overall LEC averages for the DS1 and DS3 POT bay direct costs for roughly the same capacity are \$90 per month and \$40 per month, respectively.³⁸⁸ The standard deviations of these direct costs relative to these averages are \$71 per month and \$40 per month, respectively. The averages plus one standard deviation are, therefore, \$161 and \$80 per month.

229. SWB's DS1 and DS3 POT bay direct costs are \$571 and \$2,212 per month, respectively.³⁸⁹ NYNEX's DS1 and DS3 POT bay direct costs are \$231 and \$115 per month, respectively.³⁹⁰ These direct costs are all in excess of the overall LEC average plus one standard deviation for DS1 and DS3 POT bay direct costs.

230. We are disallowing these direct costs to the extent that they exceed the average plus one standard deviation because both SWB and NYNEX fail to justify these high costs. SWB does not justify its POT bay direct costs because SWB merely asserts that the "initial costs" of this equipment are based on current vendor prices but does not submit those prices.³⁹¹ SWB also states that it applies in-place factors to the initial costs to calculate the total investment cost.³⁹² SWB does not, however, identify the numerical value of these in-place factors or provide data to support those values. Moreover, SWB explains that it applies

³⁸⁷ See Section III.C.2.c.ii *supra*. SWB's DS1 POT bay direct cost, \$571.32 per month, exceeds the overall LEC POT bay direct cost average plus two standard deviations, \$545.10 per month, when this statistic is computed without excluding SWB from the data base. Assuming the provision of four DS3s, SWB's DS3 POT bay direct cost, \$2,211.71 per month, even more significantly exceeds the overall LEC POT bay direct cost average plus two standard deviations, \$1,993.49 per month, when this statistic is computed without excluding SWB from the data base.

³⁸⁸ Direct costs for the DS1 and DS3 cross-connection and termination equipment functions are based on a volume of 100 DS1s and four DS3s respectively, which we believe are reasonable estimates of the demand in typical physical collocation arrangements. See Section III.C.2.c.iii *supra*. Because one DS3 is equal to the capacity of 28 DS1s, the capacity of four DS3s is roughly equal to the capacity of 100 DS1s. *Id.*

³⁸⁹ LECs other than SWB develop only recurring direct costs for their POT bays. SWB develops both recurring and nonrecurring direct costs for its POT bays. To compute a total monthly direct cost for SWB's POT bay, we amortize SWB's nonrecurring direct cost over a 60 month period at an 11.25 percent interest rate. We then add the monthly amortized amount of SWB's nonrecurring POT bay direct cost to SWB's monthly recurring POT bay direct cost. The sum of these two direct costs is our calculation of SWB's total monthly POT bay direct cost, which is \$571.32 per month for a DS1 passive POT bay and \$2,211.71 per month for a DS3 passive POT bay.

³⁹⁰ NYNEX does not specifically identify its POT bay direct costs in its direct case. NYNEX does, however, state that the POT bay comprises about 60 percent of its DS1 office channel termination rate. See NYNEX Direct Case, Attachment L at 6. We use this percentage to determine NYNEX's DS1 and DS3 POT bay direct costs.

³⁹¹ SWB Direct Case, Appendix 2 at 3.

³⁹² SWB Direct Case at 14, Appendix 2 at 3.

annual cost factors and inflation factors to the total investment to develop the recurring costs of the POT bay.³⁹³ SWB does not, however, quantify the inflation factors that it uses and does not submit any data or study or describe in adequate detail the assumptions and the methodology it uses to develop the annual cost factors. NYNEX fails to justify its POT bay direct costs because, although NYNEX explains its rationale for requiring such equipment, it provides none of the data, and explains none of the assumptions or the methodology on which it develops the POT bay investment and the direct costs associated with that investment.³⁹⁴

231. Accordingly, we require NYNEX to establish a POT bay rate that reflects direct costs that do not exceed the average LEC POT bay direct cost plus one standard deviation,³⁹⁵ and NYNEX and SWB must provide refunds to the interconnectors to the extent that either LEC has recovered from these customers POT bay direct costs that exceeded the average plus one standard deviation. In the event that direct cost disallowances that we have set forth elsewhere in this Order affect the level of their POT bay direct costs, \$160.77 and \$79.57 per month are the maximum permissible levels for their DS1 and DS3 POT bay direct costs, respectively and the full amount of any other disallowances must be reflected in the recalculated rates even when the result of those other disallowances would bring their POT bay direct costs below \$160.77 and \$79.57 per month.

g. Security Costs

i. Background

232. LECs' security rates are comprised of charges for installation and maintenance of security equipment and for security escort services. In the *Designation Order*, the Bureau asked the LECs to justify the security requirements that they impose on interconnectors.³⁹⁶ The Bureau's TRP charts set forth in the *Designation Order* were designed to disaggregate security direct costs into two functions -- Security Installation and Active Security -- because LECs' use of different rate structures made it difficult to determine precisely how security costs were assigned among rate elements.³⁹⁷ The Bureau asked the LECs to provide TRP data on the investments, expenses and taxes for these two functions in their direct cases and to

³⁹³ SWB Direct Case, Appendix 2 at 3-4, Exhibit 1 at 1-4.

³⁹⁴ NYNEX Direct Case, Appendix A at 22, Attachment L.

³⁹⁵ The requirement of establishing a POT bay rate that reflects direct costs that do not exceed the average LEC POT bay direct cost plus one standard deviation does not apply to SWB because it no longer offers physical collocation service.

³⁹⁶ *Designation Order*, 8 FCC Rcd at 6914.

³⁹⁷ *Id.* at 6911.